

1164-03-144

Thu Thi Anh Le* (thule@ksu.edu), 1544 International Court, H24, Manhattan, KS 66502, and **Dinh-Liem Nguyen** and **Hayden Schmidt**. *Orthogonality and direct sampling method for Maxwell's equations in bi-anisotropic media.*

The electromagnetic inverse scattering problem (EISP) is to reconstruct some physical and geometrical characteristics of an object from the electromagnetic field scattered by that object. The problem arises in applications such as nondestructive testing, radar, medical imaging, geophysical exploration, etc. In this talk we discuss our result on the EISP for bi-anisotropic media. We develop the Direct Sampling Method (DSM) and Orthogonality Sampling Method (OSM) to reconstruct the geometrical properties of bi-anisotropic scattering objects of extended shape. These methods are fast, easy to implement (no regularization needed), and stable against noise in the data. Numerical results for both simulated and experimental data will be presented. This is joint work with Dinh-Liem Nguyen and Hayden Schmidt. (Received January 17, 2021)